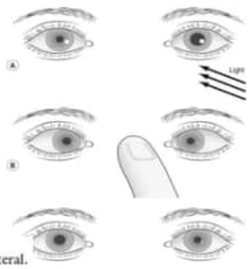
Ophthalmology

Case 1: A 30 yrs old female presents with complains of blurring of vision while reading and photophobia in bright light. On examination, there is anisocoria with a large regular pupil in the left eye. Both direct and consensual light reflex is absent in the left eye . The left pupil responds slowly to near with slow re-dilatation. Right eye shows normal pupillary response. Fundus is normal in both eyes. The most likely diagnosis is: The most probable diagnosis?

Dx: Holmes- Adie pupil / Tonic pupil

➔ Anisocoria indicates the abnormality of the efferent pathway. In afferent lesions the pupils are equal in size .



Tonic Pupil (*Adie's Pupil*). Pupil is large, regular, and usually unilateral. Reaction to light is severely reduced and slowed, or even absent. Near reaction, although very slow, is present. Slow accommodation causes blurred vision. Deep tendon reflexes are often decreased.

Presents as U/L mid-dilated Pathology in ganglion of short ciliary nerve

Oculomotor Nerve (CN III) Paralysis. The dilated pupil is fixed to light and near effort. Ptosis of the upper eyelid and lateral deviation of the eye are almost always present.

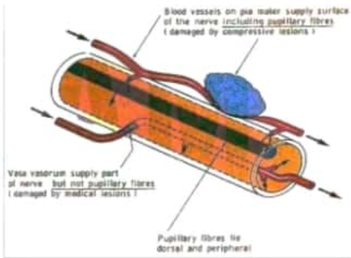
Horner's Syndrome. The affected pupil, though small, reacts briskly to light and near effort. Ptosis of the eyelid is present, perhaps with loss of sweating on the forehead. In congenital Horner's syndrome, the involved iris is lighter in color than its fellow (*heterochromia*).

Miosis, Ptosis, Anhidrosis, enophthalmos, Loss of cilio-spinal reflex

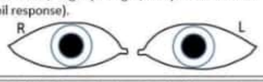
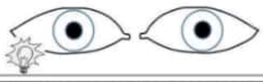
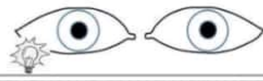
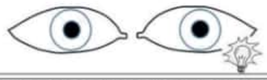
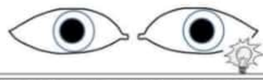
Small, Irregular Pupils. Small, irregular pupils that accommodate but do not react to light indicate *Argyll Robertson pupils*. Seen in central nervous system syphilis.

Presents as B/L constricted pupil Pathology: Pre-tectal nuclei

- Anisocoria more in dark : Horners
- Anisocoria more in light: Holmes –Adie pupil



HUTCHINSIONS' PUPIL: **Hutchinson pupil** is a fixed and dilated pupil caused by compression of the oculomotor nerve (CN III) as a result of uncal herniation. The parasympathetic fibers to the pupil are responsible for pupillary constriction. The fibers pass through the periphery of the oculomotor nerve, and hence are the first to be affected in case of compression of the nerve. Therefore Miosis followed by mydriasis

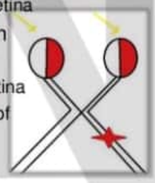
Normal swinging light test	Left Relative Afferent Pupillary Defect* (RAPD)
(1) Begin with dark room, bright pen light, and patient fixated at distant object (to avoid a near pupil response). 	(1) Begin with dark room, bright pen light, and patient fixated at distant object.
(2) **Shine light into right (R) eye**. Both pupils should constrict. 	(2) **Shine light into right (R) eye**. Both pupils constrict. 
(3) **Swing light to left (L) eye**. Both pupils remain constricted. 	(3) **Swing light to left (L) affected eye.** Instead of pupil constriction, both pupils will *dilate*. 
(4) **Swing light back to right eye**. Both pupils remain constricted.	(4) **Swing light back to right (normal) eye**. Both pupils constrict.

A RAPD indicates unilateral or asymmetric optic nerve pathology (eg. asymmetric glaucoma) or retinal disease and should ALWAYS be referred to an optometrist or an ophthalmologist.

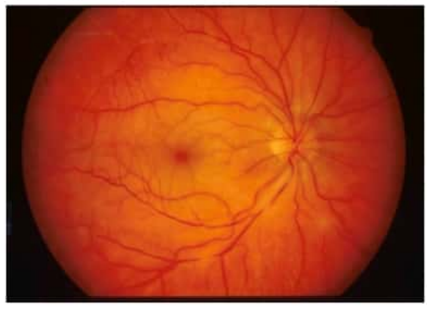
*** In a right RAPD, the both pupils paradoxically dilate when light is shone in the right eye during the swinging flashlight test.**

Wernicke's Hemianopic Pupil

- Optic tract lesion
- LIGHT REFLEX ABSENT on stimulating –
  - Affected side – temporal half of retina
  - Opposite side – nasal half of retina
- LIGHT REFLEX PRESENT on stimulating –
  - Affected side – nasal half of retina
  - Opposite side – temporal half of retina

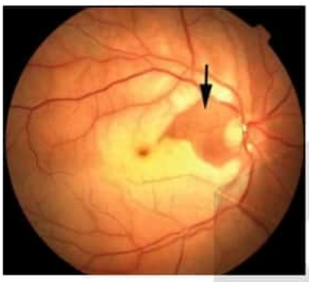


Case 2: A 50 years old male patient ,presented to the emergency department with persistent fever, cough, and worsening shortness of breath tested positive for covid-19 . He had fever of 101.2 F, tachypnea and bilateral expiratory wheeze. Chest radiography revealed bilateral reticular interstitial opacities consistent with viral pneumonia . On the third day,he was intubated and transferred to the intensive care unit due to acute respiratory distress syndrome. On the day of his discharge ,on the 12th day, he complained of sudden onset of loss of vision in his right eye. On examination RE : pupil reactions were absent . Rest of the anterior segment was normal . On fundus examination: retinal whitening with cherry –red spot . Optic nerve has slightly indistinct margin. The most probable diagnosis:



Dx: CRAO d/t hypercoagulable state produced by COVID19

Fluorescein angiographic photograph of CRAO. Note the delayed and segmented arteriolar filling (a) in each of the major arteriolar trunks distal to the central occlusion, and a small segment of an inferior temporal arteriole (b) that is strongly enhancing and may represent a fragment of distal embolization from the central blockage.



14% population has a dual blood supply of the retina. This is a case of CRAO with sparing of the cilio-retinal artery because of the which patient does not go completely blind but has a tubular vision.

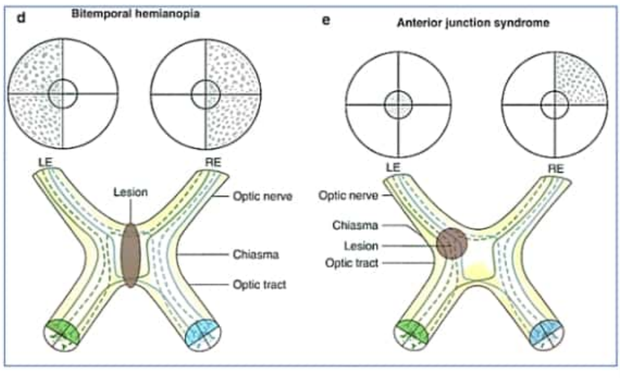
Cilio-retinal artery is a branch of short posterior ciliary artery.

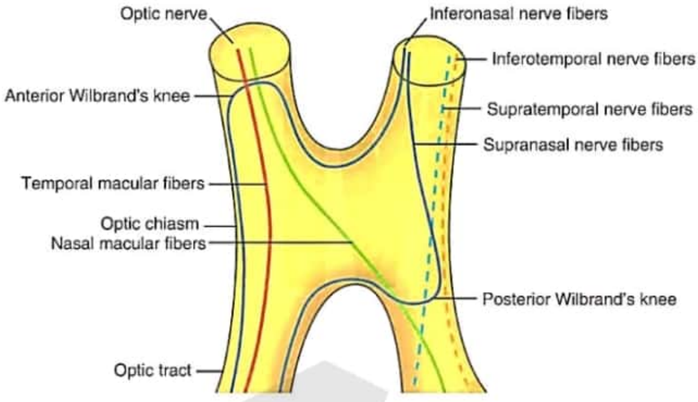
Causes of tunnel/tubular vision:

1. CRAO with sparing of cilio-retinal artery
2. Occipital lobe lesion (d/t macular sparing) – keyhole vision
3. Late stage of Retinitis Pigmentosa
4. Quinine toxicity
5. Vigabatrin toxicity

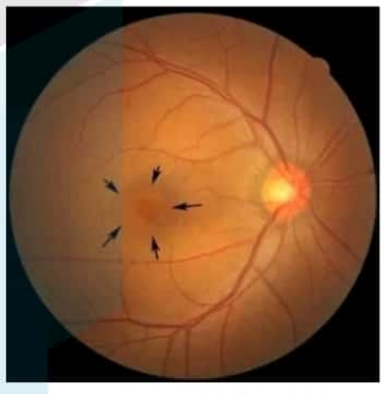
Case 3: A middle-aged women presented with the complains of painless dimunition of central vision in her left eye detected on routine eye examination. She also complains of difficulty in reading. On examination, visual acuity in RE: 6/9 and LE: 6/24 . IOP in RE is 12mmHg and LE : 13mmHg . Pupils show a brisk reaction in the RE whereas the LE shows mild RAPD. There are mild lenticular changes in both eyes. Visual field examination shows centrocaecal scotoma in the left eye and superotemporal field loss respecting the vertical meridian in the right eye. Fundus shows temporal pallor in both the eyes with normal macula and periphery. MRI brain showed a sellar mass with characteristic "Snowman" appearance. The lesion is in:

Ans: Pituitary Adenoma leading to Anterior Junction Syndrome **(Junctional scotoma of Traquair)**



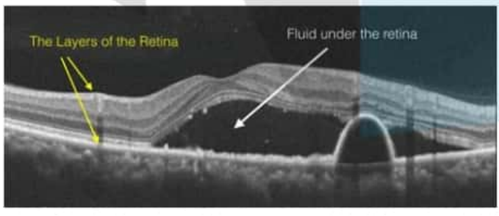


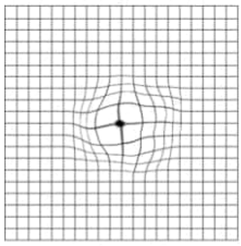
Case 4: A 35 year old man presented with blurry vision in the right eye since one week . The images in his right eye were distorted .He noticed his symptoms several days after starting oral steroids for arthritis in his wrist . There is no history of floaters or photopsia. No history of DM and HT . On examination ,visual acuity in RE: 6/9 and LE: 6/6 . IOP is normal in both eyes . BE: Pupils are round and reacting. Slit lamp examination: BE : Anterior segment is normal. On fundus examination RE: Ring Reflex at the foveal area .LE: Fundus is normal. Amsler Grid Test showed central distortion. Field testing showed a relative central scotoma The most probable diagnosis:



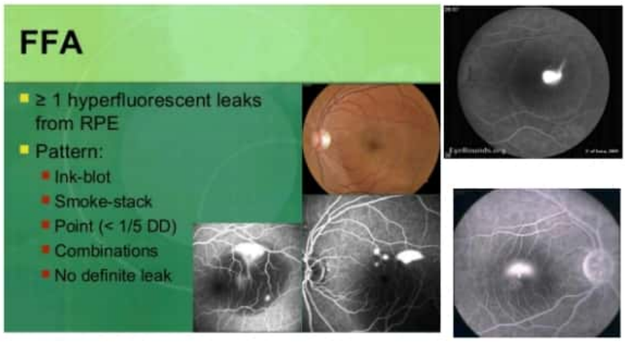
Ans. Central Serous Retinopathy d/t Oral Steroid administration

On OCT:





On FFA:

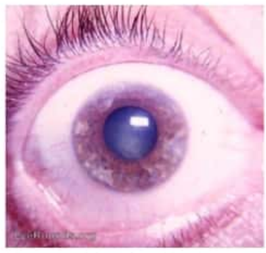


Mx: Self resolving

If recurrent or long standing (>3 months)

Go for Photodynamic therapy

Case 5: A 45 yrs male patient has presented with gradual blurring and dimunition of vision in his right eye . On examination visual acuity RE: 6/24 LE: 6/6. Slit lamp examination shows heterochromia iridis. RE : cornea : few stellate KPs , AC : mild flare and few cells are seen , atrophic patches in the iris . Lens : posterior subcapsular cataract . LE: Normal. On gonioscopy: RE shows small blood vessels in the angle. LE: normal findings. IOP : RE : 13mmHg LE: 12 mmHg The most probable diagnosis:



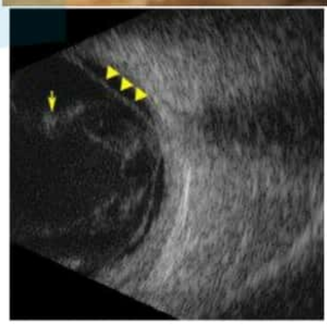
Ans. Fuch's Heterochromic Cyclitis (Image shows iris dystrophy with Posterior subcapsular cataract commonly associated with Fuch's)

Case 6: A 60 years female presents to the eye OPD with complains of marked dimunition of vision in her right eye with severe pain. Redness and watering. She has undergone cataract surgery of the right eye 4 days back. On examination RE: visual acuity : 6/60 [in contrast to the records of her VA of 6/9 in the immediate postop period]. RE: marked conjunctival congestion, chemosis, corneal haze and hypopyon. Pupils show RAPD in the RE. Fundus glow is absent. USG B SCAN shows vitreous exudates. LE: NAD. The probable diagnosis :

Ans. Endophthalmitis

C/F- Corneal Haze, Hypopyon
Etiology: MCC of early onset: Staph Epidermidis; MCC of Late onset: propionibacterium acnes
Treatment: Intravitreal Antibiotic injection (Ceftazidine + Vancomycin) -Gentamycin and Amikacin are maculo-toxic. Antifungals- AMB/Voriconazole

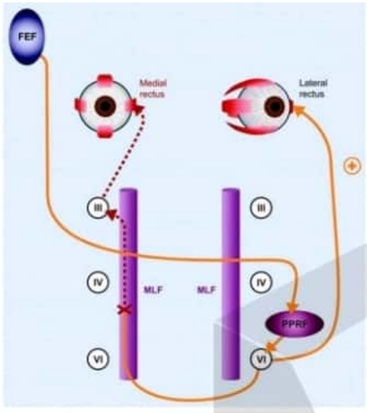
On USG B Scan: Vitreous Exudates can be seen

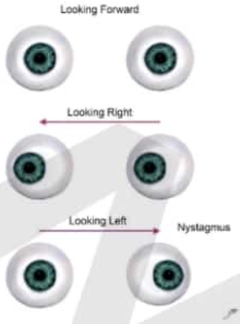


Case 7: A 57 years old male presented with **complaints of blurring of near vision.** He has headache, fatigue and progressive weakness in his legs. On eye examination, his BCVA was 6/9 in both eyes. Pupils were equal and reactive with no afferent defects. Slit lamp examination revealed bilateral nuclear sclerosis. Ocular motility testing revealed adduction lag in RE with

associated abduction nystagmus in the LE. Convergence is normal. Visual field testing revealed no central scotoma or neurological visual field defects. The most probable diagnosis ?

Ans. Internuclear Ophthalmoplegia (INO)





ONE-AND-A-HALF SYNDROME

- Features of right sided one-and-a-half syndrome include:
  - Gaze palsy on attempted Rt gaze
  - Adduction deficit on attempted Lt gaze
  - Abduction of the Lt eye is the only normal horizontal movment
- Stroke and multiple sclerosis are the main causes of this rare syndrome, but it can be caused by any structural lesion in the dorsal pons.

• CONVERGENCE FAILURE: This indicates that the lesion involves the MLF in the midbrain. This is labelled as Anterior INO
• INTACT CONVERGENCE: It indicates that the MLF is involved more caudally in the PONS, sparing the medial rectus subnucleus. This is labelled as Posterior INO

• BINO: THIS IS INO IN EACH EYE WITH BILATERAL ADDUCTION DEFICITS WITH BILATERAL ABDUCTING NYSTAGMUS
• WEBINO: THIS IS BINO WITH MANIFEST EXOTROPIA IN PRIMARY POSITION.
• ONE AND HALF SYNDROME: IT'S A GAZE PALSY IN ONE DIRECTION WITH INO IN THE OPPOSITE DIRECTION

Case 8: 1 yr old child presents in the eye opd with parents complaining of white pupil of his left eye. The red reflex testing with a direct ophthalmoscope showed leukocoria in the LE. Left eye showed esotropia of 15 prism dioptres. Detailed examination under anaesthesia was done. Tonometry: RE: 12mmHg LE: 13mmHg Corneal diameter in both eyes was normal. Anterior segment is normal. Fundus examination RE: normal LE: single large tumour at the macular area. USG scan showed calcification within the tumour.
The most probable diagnosis?

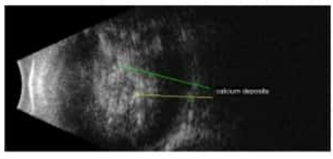
Ans. Retinoblastoma

M/C Presentation: Leukocoria > Strabismus

M/C route of spread- Optic Nerve
M/C non ocular malignancy associated: Osteosarcoma
Mutations: 13q14 RB gene
Trilateral RB: B/L RB + Pinealoma

LEUKOCORIA

- Congenital Cataract
- Retinoblastoma
- Retinopathy of Prematurity
- Persistent Hyperplastic Primary Vitreous
- Retrolental Fibroplasia
- Toxocariasis
- Toxoplasmosis
- Incontinentia pigmenti
- Retinal Detachment
- Cytomegalovirus Retinitis



On B Scan: Tumour with Calcification

Case 9: A 28years old female patient presents in the opd with dimunition of vision and **glare in both eyes**. She is tall, thin statured with disproportionately long limbs and arachnodactyly. On examination, the. Visual acuity is RE : 6/12 and LE : 6/18 . Glasses used by the patient: RE: -6.25D sph +3 cyl at 135 degree and LE -5.0D sph +2.75 D cyl at 45 degree . Pupils: No anisocoria and no RAPD. IOP RE: 12 mmHG LE: 14mmHg . Slit lamp examination in oblique illumination showed an inferior subluxation of lens. Fundus in both eyes is normal. What is the most probable diagnosis?

Ans: Marfan's Syndrome (Ectopia Lentis)- Rarely dislocation can be inferiorly also. However M/C is the superior-temporal

Image: Inferior Subluxation of lens with Golden Crescent

Q. Homocystinuria- M/C Dislocation is Inferio-nasal
Q. Weill-Marchesani syndrome- M/C Dislocation is downwards and forwards

Case 10: A 40 years male patient presents in the eye OPD with complains of dimunition of vision ,which is more prominent at night. On examination : He is using specks of -7 in both eyes with BCVA of 6/12 in his right eye and 6/18 in his left eye.
BE : Anterior segment : Post subcapsular cataract .On fundus examination: bilateral mid-peripheral bone – spicule pigmentary changes and RPE atrophy associated with arteriolar thinning. There is mild disc pallor . ERG showed a reduced scotopic response. What is the most probable diagnosis :

Ans. Retinitis Pigmentosa

- M/C cause: Sporadic
- M/C Route of inheritance: Autosomal Dominant
- M/C Systemic association: Usher's Syndrome (RP + Deafness)
- Field changes: Ring Scotoma (Early) → Tunnel vision (Late)
- Supplements of Docosahexaenoic acid may be given.
- Bionic eyes may be used for treatment

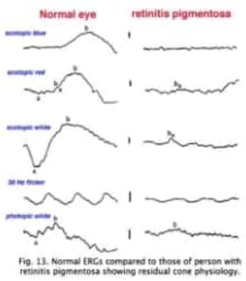
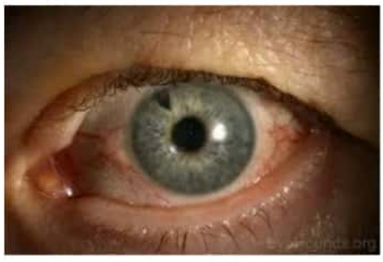


Fig. 13. Normal ERGs compared to those of person with retinitis pigmentosa showing residual cone physiology.

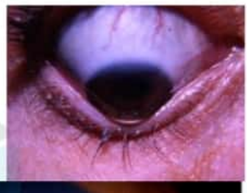
Case 11: A 55 years male presents with the complains of blurred vision,discomfort and coloured halos in his left eye. He gives history of a similar episode 5 years back. On examination of the left eye, his IOP is 53mmHg. In the RE, IOP is 18 mmHg.Slit lamp examination of LE shows mild corneal edema with single KP and few aqueous cells. Nuclear

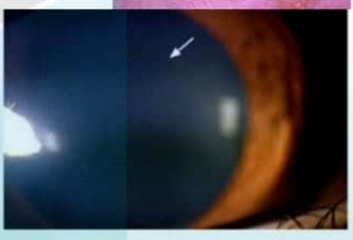


sclerotic changes in the lens are present. The iris is hypochromic with a peripheral iridotomy done . The pupils are dilated and reacting sluggishly. RE: Anterior segment shows mild nuclear
sclerotic changes in the lens. On gonioscopy, both eyes: the angles are open. . Fundoscopy shows C:D ratio of 0.4 in the LE and 0.3 in the RE. What is the most probable diagnosis?

Answer: POSNER SCLOSSMANN SYNDROME

- M > F, a/w HLA, CMV infection
- Treatment: Steroid for uveitis with antiglaucoma cover

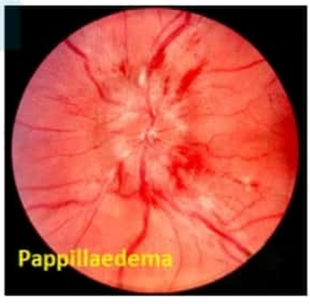




Case 12: A 22 year male presents with progressive loss of vision R>L. On examination VA: RE: 6/36 LE: 6/12 . Anterior segment examination→ RE: Clear ectatic cornea, with striae and iron deposition on the cornea. There was v shaped deformity of the lower lid on downgaze. LE: Clear
cornea with mild ectasia Pachymetry showed : RE: Central thinning [419 microns, thinnest is 360 microns on pachymetry] LE: central thinning [467 microns, thinnest is 396 microns on pachymetry] Corneal topography shows myopia with irregular astigmatism in both eyes . Fundus : BE is normal .

Dx: Keratoconus

Fleischer's ring
visible all around the base of cone in Keratoconus



Case 13: A 31 years old obese female presented to her eye doctor with history of headaches and transient visual obscurations for the past 6 months. She also gave history of ringing sensation in the ear for the past 1 year. On examination: visual acuity RE : 6/6 and LE : 6/9 BE : anterior segment is normal with normal IOP. Pupils are round and reacting with no RAPD. Colour vision testing is normal in both eyes. On fundus examination: bilateral disc edema. MRI brain was normal . Lumbar puncture showed elevated pressure. The most probable diagnosis.

Ans: Benign I/C HTN (pseudotumor cerebri)

Associations: Obesity, Vit A toxicity, OCP, Tetracycline use

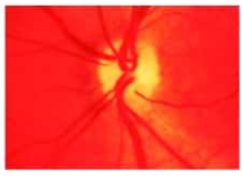
Mechanism: Imbalance b/w formation & absorption of CSF

Case 14: A 59 yrs female patient presents to the eye opd with gradual dimunition of vision more in her RE. She also complains of increasing difficulty with glare from bright lights at night,seeing roadsigns and in reading newspaper. The patient is hypertensive with type 2 diabetes. On examination RE : VA RE : HM LE: : counting fingers at 3 feet . Pupils are round and reacting with iop of 21mmHG in her right eye and 20mmHg in her left eye. Anterior segment RE :4+ brunescent nuclear sclerosis , nucleus appeared sunken inferiorly in the surrounding cortex. LE: 3+ Nuclear sclerosis and diffuse cortical changes. Fundus examination was not possible due to opaque media. USG Bscan : BE no mass lesion or retinal detachment . Diagnosis?

Ans: Morgagnian Cataract

M/C complication of nuclearsclerotic cataract→ Subluxation lens

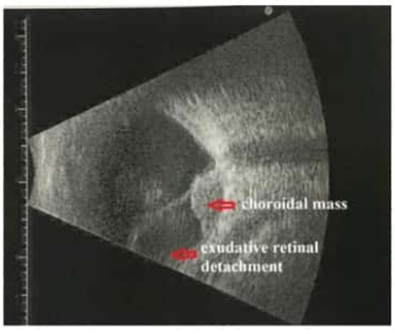
Case 15: A 64 year old male noted the onset of oscillopsia 5 months prior to the presentation. On examination: BCVA in RE: 6/9,LE: 6/6P. The pupils are round and reacting ,No RAPD . Ocular movement : full movements with see-saw nystagmus. In one half of the cycle the right eye will rise and intort and left eye will fall and extort , in the next half of the cycle this reverses. Visual field charting shows bitemporal hemianopia. On fundus examination, there is optic nerve pallor in a bow tie distribution. Where is the lesion?

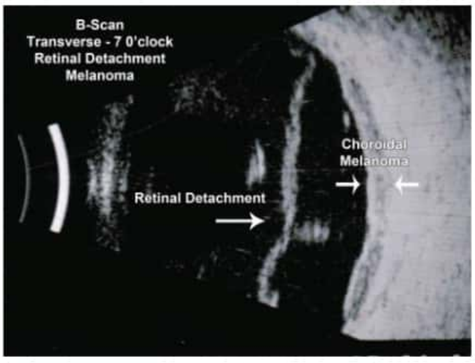


Ans. Optic tract or chiasmal lesions

Case 16: A 58 years female patient presents with progressive loss of peripheral vision with floaters in her right eye. There is no history of flashes of light.On examination ,patient is orthophoric with full coular motility. BE: VA: 6/6 ,IOP : BE 12mmHg , visual field examination shows a total superotemporal deficiency in the RE and normal field in the left eye . Slit lamp examination : RE: anterior chamber is deep and quite with normal iris , mild lenticular changes, and anterior vitreous cells. LE: mild lenticular changes are present , rest is NAD . On fundus examination: RE: Elevated peripapillary ,moderately pigmented collar buttonshaped choroidal mass with overlying RPE metaplasia inferonasal to the disc. The retina shows grey reflex in the inferior part ,which is convex and smooth and associated with shifting fluid. LE: fundus is normal .. The most probable diagnosis?

Ans. Choroidal Melanoma with exudative retinal detachment



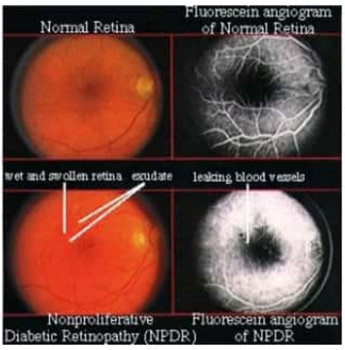


Case 17: A 39 year old male patient presents with cloudy vision , photophobia and pain in his right eye since 3 weeks . The pain since then has increased to 8 out of 10 on a pain scale. He is a contact lens wearer, and at the time of presentation he was on Gatifloxacin and tobramycin eye drops every hour and cyclopentolate 1% twice a day in his right eye. Despite the therapy , the ulcer was persisting and was worsening. On examination: RE: VA is Finger count .LE: 6/6 . Ocular motility was full. Iop in RE: 19mmHg LE : 18 mmHg . BE: pupils are round and reacting with no RAPD. Corneal sensation in RE: decreased and LE : normal RE: ring lesion on the cornea with hypopyon. Few KPs are present alongwith aqueous cell and flare . Enlarged corneal nerves are appreciated on magnification. LE: normal . Fundus examination : RE: not possible due to hazy media/ LE: normal, most probable diagnosis:

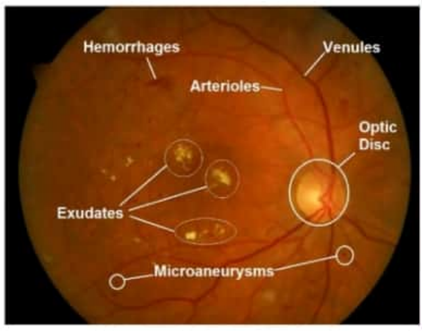
Ans. ACANTHAMOEBA KERATITIS: RING WITH HYPOPYON

M/C lesions after contact lens use → Pseudomonas

Case 18: A 53 yrs old male patient presents with gradual dimunition of vision L > R . He has Type 2 diabetes and hypertension. His BCVA in RE is 6/12 and LE is 6/24 . Slit lamp examination shows: bilateral lenticular changes {l>R} . On fundus examination: multiple microaneurysms seen in both eyes in the macular area alonwith few hard exudates . FFA was done for this patient, which showed multiple hyperfluorescent dots. The most probable diagnosis?
Ans. Snowflake cataract

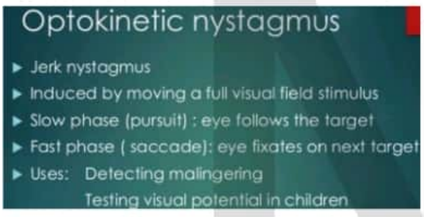


Microaneurysms are along **NFL Layer**

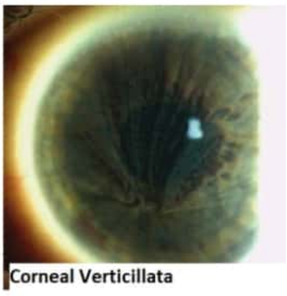


Case 19: A 25 yrs old lady presents with sudden,severe bilateral loss of vision with no perception of light. On examination BE : anterior segment is normal. Pupils are round and reacting with no RAPD . Fundus : BE was normal. The patient was tested on OK Drum test which showed a normal response. The most probable diagnosis?

Ans. Malingering (checked by presence of optokinetic nystagmus on OK drum test)



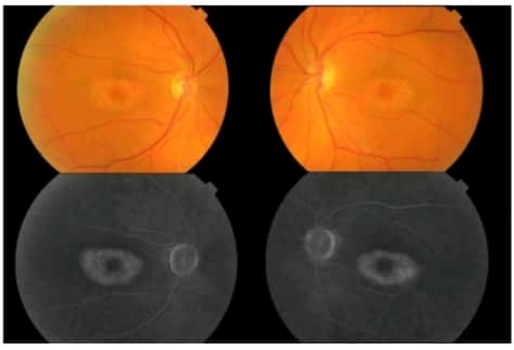
Case 20: A 57 years female complains of bilateral central photopsia for two years. She is currently being treated for Sjogrens syndrome with methotrexate and prednisolone. She had been previously treated with Hydroxychloroquine for 10 years [6.5mg/kg] , which was stopped 1 year back. On examination , the visual acuity RE: 6/12 LE: 6/9. Pupils are round and reacting with no RAPD . Ocular movements are full and visual field shows paracentral scotoma with decreased foveal sensitivity in both eyes . BE: No verticillata . Mild lenticular changes on both eyes. Fundus examination: BE: Paracentral depigmentation of the RPE at the macular area , sparing the fovea. FFA shows paracentral hyperflourescence

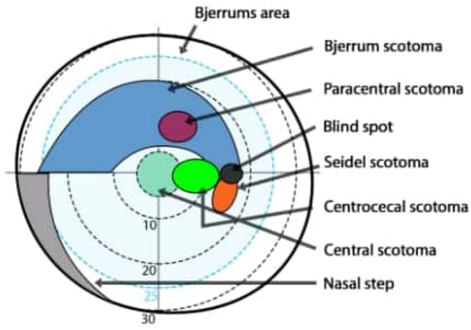

Corneal Verticillata

Ans. Bull's eye Maculopathy

Causes of vortex keratopathy: Chloroquine, HCQ, Tamoxifen, Amiodarone, Fabry's Ds

**Chlorpromazine is not a cause of vortex keratopathy as it is deposited on endothelium and not epithelium.





Causes of Bull's eye maculopathy: Chloroquine, HCQ, Cone dystrophy

Visual Acuity

Neonates

Teller chart

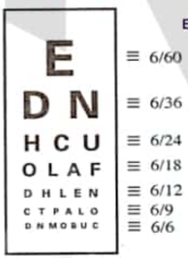
Preferrential acuity test

Visual evoked response

Optokinetonystagmus drum

Adults

Snellen's chart



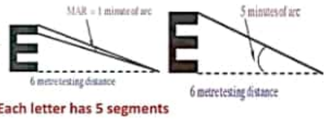
≡ 6/60
≡ 6/36
≡ 6/24
≡ 6/18
≡ 6/12
≡ 6/9
≡ 6/6

Minimal angle of resolution (MAR)

Each segment of letter subtends — Total letter subtends

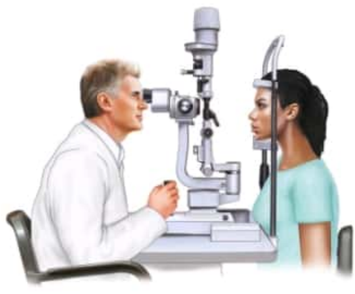
6/36 = 6 minutes of arc — 6✖5= 30 minutes of arc

6/6 = 1 minutes of arc



Each letter has 5 segments

- Slit lamp examination: can see uptil anterior 1/3rd of the vitreous
- Slit lamp biomicroscopy: Gold standard to see Optic Disc and Macula (Central Retina)
  - Uses different lenses: +90 D , +78 D, -58 D (Hruby lens)



Magnification in emmetropic eye

= 60/4
= 15 times

Magnification in myopic eye of -4 D

= (60+4)/4
= 16 times

Direct ophthalmoscopy

To see Optic disc, macula
Virtual erect image
Field of view – 2 disc dioptre
Magnification = Power of eye/4

Indirect ophthalmoscopy/Fundoscopy

Magnification in hyperopic eye of + 4 D using 20D lens

= (60-4)/20
= 56/20 times
= 2.8 times

To see Entire retina
Real inverted image
Field of view – 8 disc dioptre

Magnification =
Power of eye/power of lens (+20D,+30D)

Patient with 6/36 vision

Vision with pin-hole

Vision Improves

Refractive error

Vision deteriorates

Macula pathology
or
central media opacity

Astigmatism

Regular

Irregular

Keratoconus

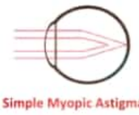
Corneal scar

Regular Astigmatism

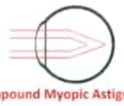
Oblique

Bi-Oblique

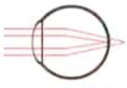
Regular Astigmatism



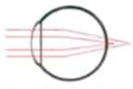
Simple Myopic Astigmatism



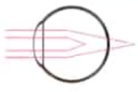
Compound Myopic Astigmatism



Simple Hypermetropic Astigmatism



Compound Hypermetropic Astigmatism

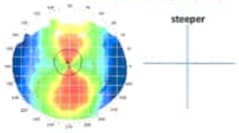


Mixed Astigmatism

Regular Astigmatism

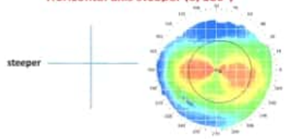
With the rule Astigmatism

Vertical axis steeper (90°)

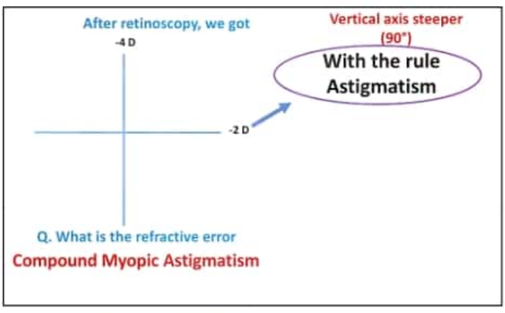


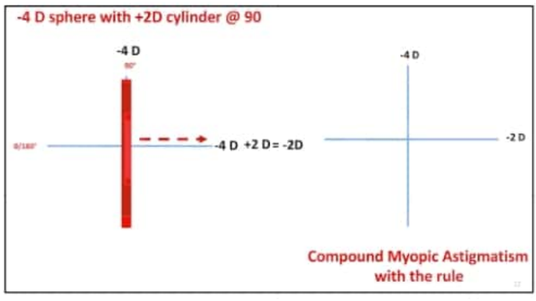
Against the rule Astigmatism

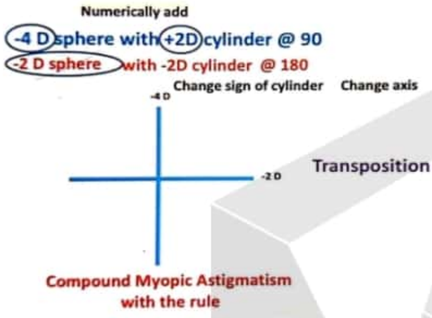
Horizontal axis steeper (0/180°)

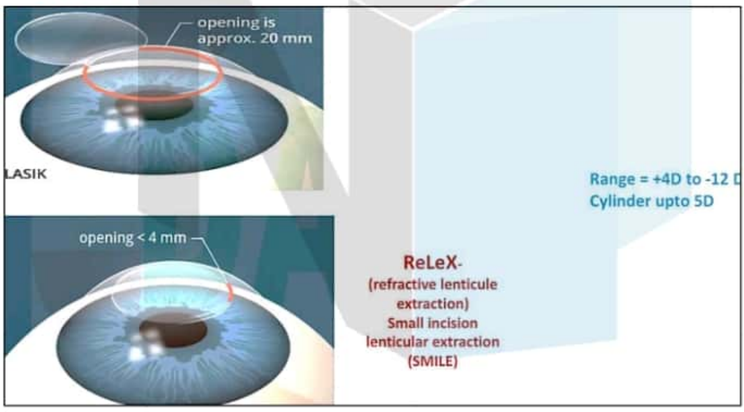


More cornea power - More myopic axis – more steeper axis









Executive bifocals – especially in pediatric

1. Congenital cataract

Afetr Sx
Accomodation is lost

Near glasses are needed

2. Accomodative esotropia

To assist Accomodation

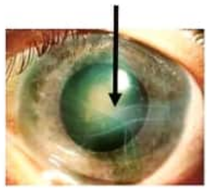
Near glasses are needed

Glaucoma

What will be the treatment of this child with watering, photophobia

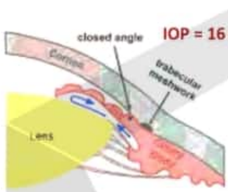
Congenital glaucoma

Habb's striae

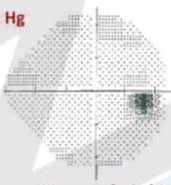


Goniotomy

What will be the treatment of this patient with no symptoms



Occludable angles



Normal right visual field

Primary angle closure suspect (PACS)

Which of the tonometers is preferred in patients with corneal opacity?

Goldmann applanation tonometer

Tonopen – combined Indentation and applanation principle

Rebound tonometer- self tonometer

Side effect of which glaucoma drug

Deep sulcus-orbitopathy

Hyperpigmentation of iris

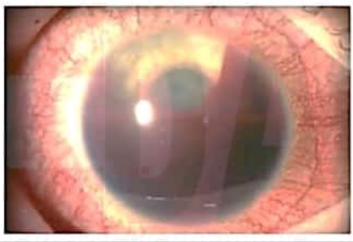
Hypertrichosis

Prostaglandin analogue

Eyelid Retraction as a S/E
Apraclonidine > Brimonidine

Allergic Blepharoconjunctivitis
As a S/E Apraclonidine and Brimonidine.
Brimonidine is safe in pregnancy and is C/I in children (Sleep apnea, Heart Block)

A Sickle cell anemia presents patient after trauma. Which glaucoma medications is to be avoided?



CARBONIC ANHYDRASE INHIBITORS

Orbit and Adnexa

Proptosis

Rule out pseudo-proptosis - (Myopia/lid retraction,C/l ptosis)

Lid lag, EOM belly enlargement, soft tissue signs –
Rule out Thyroid eye disease(Thyroxine levels is not important)

Painless axial, RAPD gradual vision loss
- Female child, features of NF1 → Optic glioma
- Female middle aged, psammoma bodies → Optic nerve meningioma

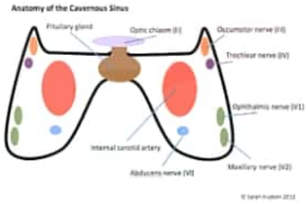
Abaxial, painful, sign of inflammation- Orbital cellulitis/ pseudotumour/ malignancy

Painless axial, gradual visual loss
Benign intraconal tumour – Cavernous hemangioma/Schwannoma

Abaxial, painless, look for direction of proptosis
Lacrimal gland tumours

Pulsatile proptosis

Causes of presentation like this?

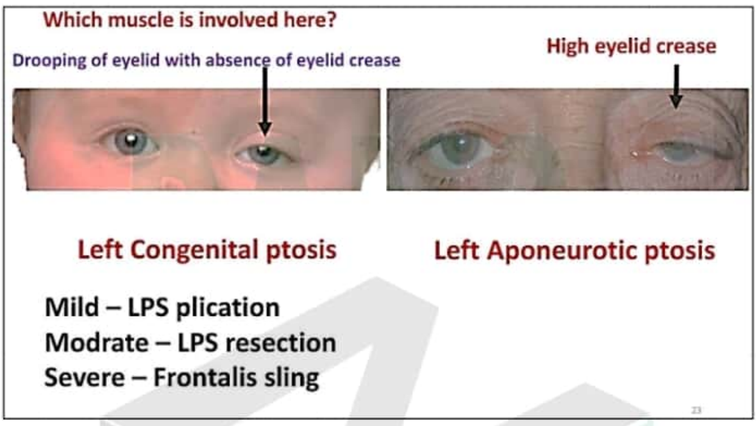


3, 4, v1, v2, 6

Carotico - Cavernous fistula

roof of orbit
sphenoid dysplasia
meningocele
→ too no mitted pulsations

Superior orbital fissure syndrome = proptosis + 3,4,V1,6 pathology
Orbital Apex Syndrome = SOF Syndrome + Blindness
Tolosa Hunt Syndrome = Idiopathic



Marcus Gunn jaw-winking syndrome

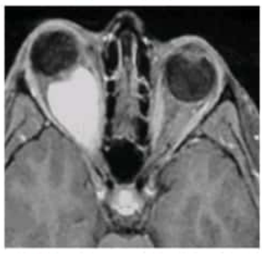
- Accounts for about 5% of all cases of congenital ptosis
- Retraction or 'wink' of ptotic lid in conjunction with stimulation of ipsilateral pterygoid muscles

Tensilon/ice pack test

Patient with variable ptosis, diplopia, restriction of eye movements

Myasthenia gravis

Other ophthalmic features associated with this?



Optic nerve glioma

Plexiform neurofibroma

Left Mechanical ptosis

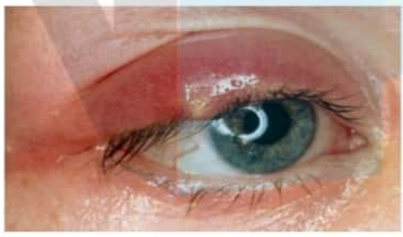
Sphenoid dysplasia

Lisch nodules

Neurofibromatosis 1

Chalazion

Internal hordeolum



External hordeolum / Stye

Spontaneous blinking = Pretarsal Orbicularis oculi

Voluntary blinking =
Preseptal Orbicularis oculi

Forceful closure=
Orbitalis Orbicularis oculi

Drainage of tears=
Lacrimal
Orbicularis oculi

Ocular Injuries:

- Photokeratitis/photophthalmia/Snow blindness- d/t UV B rays (280-320 nm) Eg. Welding
- Photoretinitis: Infrared rays (eg. Solar Eclipse)

Blunt trauma

Blunt trauma features

Blow- out # - floor of orbit

Tear-drop sign

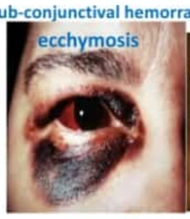
hyphema

Irido-dialysis

Basal skull # of anterior cranial fossa

Sub-conjunctival hemorrage

ecchymosis



Vossius ring

Rosette cataract

Berlin edema

Panda sign

Racoon eyes

Penetrating trauma

Perforation repair ASAP in OT

-Removal of toxic foreign body (Fe, Cu, Hg)

eye wash

Slit lamp examination – assess injury

Topical steroids – early stages

Topical ascorbate and citrate

Tetracyclines

Lubricants

Sx – keratoplasty/
limbal stem transplantation – if needed

Chemical injuries

	ALKALI	>	ACID
Most common -	LIME		Sulphuric acid
Most dangerous -	Ammonia		Hydrofluric acid

31

Squint

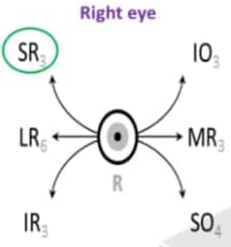
Q. Which nerves are involved in this action?

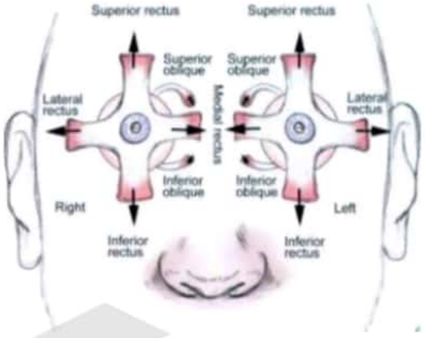
Dextroversion
6th of right
3rd of left

Herring's Law of Yoke Muscles

Q. Superior rectus – Pure elevator in abducted (23°) position

Right eye





Q. Where will this patient have maximum diplopia

Left esotropia- Left 6th palsy

Horizontal Diplopia
on looking left
Compensated by
Left face turn

Q. Diplopia Increasing on looking right and left head tilt
Which muscle palsy

Left SO palsy

Left 3rd nerve palsy

Q. Which side pupil will constrict
When light is shone to left eye?

Right will constrict

Which type of squint? Which is normal eye?

Deviation measured = 30°
Primary deviation

Deviation measured = 45°
Secondary deviation

Incomitant squint

Right esotropia, Left normal

Q. On uncovering of left eye

Diagnosis?

Left Exophoria

Horizontal BINOCULAR DIPLOPIA

CROSSED

eXophoria/
eXotropia

UN-CROSSED

esophoria/
esotropia

Interpretation as if patient's view
Normal

UN-CROSSED
Diplopia--- Eso

CROSSED
Diplopia--- Exo

Test for

Synaptophore

Binocularity
Stereopsis
Squint

Stereopsis test
- Uses polarised glasses

Titmus fly test